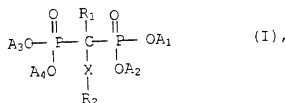


--12. Use of bisphosphonic acids of the general formula



in which

A<sub>1</sub>, A<sub>2</sub>, A<sub>3</sub>, A<sub>4</sub>, which may be identical or different, are selected from the group which consists of hydrogen, metals of main groups I, II and III of the periodic system, such as Na, K, Ca, Mg, Al as well as substituted and unsubstituted ammonium and ammonium compounds derived from ethylenediamine or amino acids,

X is absent or is selected from the group which consists of alkylene with up to 9 carbon atoms, alkenylene with up to 9 carbon atoms, hydroxyalkylene with up to 9 carbon atoms and amidino,

R<sub>1</sub> is selected from the group which consists of H, OH, NH<sub>2</sub>, -CH<sub>3</sub>,

R<sub>2</sub> is selected from the group which consists of H, OH, -NH<sub>2</sub>, substituted and unsubstituted acyl, substituted and unsubstituted alkyl, substituted and unsubstituted aryl, substituted and unsubstituted cycloalkyl, substituted and unsubstituted aralkyl, substituted and unsubstituted heterocyclic residue and the pharmaceutically compatible salts, amides, esters and salts of the esters or compounds which, on administration, form the compounds to be administered as metabolites or breakdown products, for the production of pharmaceutical preparations for the inactivation of γδ-T cells for the prevention and treatment of diseases caused by parasites, viruses, bacteria and fungi with the exception of AIDS and AIDS-initiated inflammatory conditions and the sequelae thereof, namely degeneration of connective tissue.

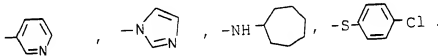
13. Use according to claim 12, characterised in that

A<sub>1</sub>, A<sub>2</sub>, A<sub>3</sub>, A<sub>4</sub>, which may be identical or different, are selected from the group which consists of hydrogen, metals of main groups I, II and III of the periodic system, such as Na, K, Ca, Mg, Al, substituted and unsubstituted ammonium and ammonium compounds derived from ethylenediamine or amino acids,

X is absent or is selected from the group which consists of alkyl, (CH<sub>2</sub>)<sub>1-6</sub>, in particular (CH<sub>2</sub>)<sub>1-5</sub>, and amidino,

R<sub>1</sub> is selected from the group which consists of H, OH, NH<sub>2</sub>, -CH<sub>3</sub>, and

R<sub>2</sub> is selected from the group which consists of -NH<sub>2</sub>,  $\begin{array}{c} \text{CH}_3 \\ | \\ -\text{N} \\ | \\ (\text{CH}_2)_4\text{CH}_3 \end{array}$



14. Use according to claim 13,

characterised in that

the bisphosphonates are selected from the group which consists of amino-hydroxy-methylidene-bisphosphonic acid,

2-amino-1-hydroxyethylidene-1,1-bisphosphonic acid

3-amino-1-hydroxypropylidene-1,1-bisphosphonic acid,

4-amino-1-hydroxybutylidene-1,1-bisphosphonic acid,

6-amino-1-hydroxyhexylidene-1,1-bisphosphonic acid,

amidinomethylene-bisphosphonic acid,

3-methylpentylamino-1-hydroxypropylidene-1,1-bisphosphonic acid,

2-(5-pyridinyl)-1-hydroxyethylidene-bisphosphonic acid,

1-hydroxy-2-(imidazol-1-yl)-ethylidene-1,1-bisphosphonic acid,

cycloheptylaminomethylenediphosphonic acid,

4-chlorophenyl-thiomethylene-1,1-bisphosphonic acid and the derivatives thereof.

15. Use according to claim 12 for the treatment and prophylaxis of acne

vulgaris, tuberculosis in humans and animals, leprosy and further mycobacterioses in humans and animals, paratuberculosis in animals, Campylobacter enteritis infections in humans and animals, of *Helicobacter pylori* and *Chlamydia* for the prevention or treatment of cardiac and vascular diseases, in particular coronary cardiac disease.

16. Use according to claim 12 in the eradication of bacteria and viruses.

17. Use according to claim 16 for the eradication of *Helicobacter pylori* and Chlamydia.

18. Use according to claim 16 for the eradication of eradication of papillomaviruses to prevent tumours, in particular tumours of the reproductive organs caused by papillomaviruses in humans, eradication of herpesviruses, eradication of human herpesvirus 8 to treat Kaposi's sarcoma, eradication of cytomegaloviruses before transplantations, eradication of Epstein-Barr viruses before transplantation and to prevent tumours associated with Epstein-Barr viruses, eradication of hepatitis viruses to treat chronic liver disease and to prevent liver tumours and cirrhosis of the liver, eradication of coxsackie-viruses in cardiomyopathy, eradication of coxsackie-viruses in diabetes mellitus patients, eradication of immunodeficiency viruses in humans and animals, treatment of accompanying infections in AIDS patients, treatment of respiratory tract inflammation of viral causation (laryngeal papilloma, hyperplasia, rhinitis, pharyngitis, bronchitis, pneumonia), of the liver and gall system (hepatitis, cholangitis, hepatocellular carcinoma), of the lymphatic tissue (mononucleosis, lymphadenitis), of the haemopoietic system, of the skin (warts, dermatitis, herpes labialis, herpes febrilis, herpes zoster, shingles), of the mucous membranes (papillomas, conjunctival papillomas, hyperplasia, dysplasia), of the cardiovascular system (arteriitis, myocarditis, endocarditis, pericarditis), of the kidney/urinary system, of the reproductive organs (anogenital lesions, warts, genital warts, sharp condylomas, dysplasia, papillomas, cervical dysplasia, condyloma acuminatum, epidermodysplasia verruciformis), of the locomotory organs (myositis, myalgia), with the exception of AIDS and AIDS-initiated inflammatory conditions and the sequelae thereof, namely degeneration of connective tissue.

19. Use according to claim 18 for the eradication of the hepatitis C virus.

20. Use according to claim 12 in a pharmaceutical preparation which additionally contains a pharmaceutically acceptable excipient.

21. Use according to claim 12 as an adjuvant to vaccines. — —